

What is claimed is:

1. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals on the outer side of said bottom surface that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface.

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said rotor having a magnet and being supported by said bearing device so as to rotatably surround the periphery of said stator, said rotor further including unbalance means.

2. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals on the outer side of said bottom surface that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface.

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said

rotor having a magnet and being supported by said bearing device so as to rotatably surround the periphery of said stator, and wherein there is provided an external drive means protruding upward from part of the housing and rotating with the rotor.

3. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals that protrude outward from said side surface approximately at the same height as the bottom surface and that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface,

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said rotor having a magnet and being supported by said bearing device so as to rotatably surround the periphery of said stator, said rotor further including unbalance means.

4. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals that protrude outward from said side surface approximately at the same height as the bottom surface and that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface,

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said rotor having a magnet and being supported by said bearing device so as to rotatably surround the periphery of said stator, and wherein there is provided an external drive means protruding upward from part of the housing and rotating with the rotor.

5. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said housing including a chuck section, the outer side of said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals on the outer side of said bottom surface or said side surface that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface,

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said rotor having a magnet and being supported by said bearing

device so as to rotatably surround the periphery of said stator, said rotor further including unbalance means.

6. A brushless motor comprising:

a housing comprising a bottom surface, a side surface, and a top surface, said housing including a chuck section, said bottom surface being located adjacent and opposite to a substrate of an equipment; and

pairs of terminals on the outer side of said bottom surface or said side surface that can be mechanically or electrically joined with said substrate of the equipment, each of said pairs of terminals being arranged on both sides with respect to a line passing through the centroid or center of gravity of the bottom surface,

wherein there are provided a stator, a bearing device, and a rotor inside said housing, said stator having a stator core and a coil wound around the stator core, said rotor having a magnet and being supported by said bearing device so as to rotatably surround the periphery of said stator, and wherein there is provided an external drive means protruding upward from part of the housing and rotating with the rotor.

7. The brushless motor according to claim 5, wherein the chuck section comprises a sucked surface that is located on the top surface and to which a suction chuck can be opposed.

8. The brushless motor according to claim 5, wherein the chuck section comprises two parallel planes located on the side surface and extending approximately perpendicularly

to the bottom surface or two parallel ridges located on the side and extending parallel with the bottom surface.

9. The brushless motor according to claim 5, wherein the chuck section comprises a ferromagnetic member forming the top surface.

10. The brushless motor according to claim 5, further having on the top or side surface, a marking for enabling the mounting direction of the motor to be determined.

11. The brushless motor according to claim 1, wherein the number of terminals on the bottom surface is larger than the number of poles required for electric connections.

12. The flat brushless motor according to any one of claim 1, wherein the top and side surfaces of the housing surround approximately the overall circumference of the rotor.

13. A tape-like package having a plurality of embosses arranged in series, said emboss accommodating a brushless motor.

14. A portable information equipment comprising a brushless motor according to claim 1.

15. The brushless motor according to claim 2, having a positioning member protruding downward from the bottom surface.

16. A motor base connector comprising a plurality of said motor bases each using a plate-like material as a base material and a skeleton that remains after these motor bases have been punched out,

wherein said plurality of motor bases are pushed back and held in said skeleton.

17. A brushless motor assembly method using the motor base connector according to claim 16, a stator, a bearing device, and a rotor, each motor base having a stator mounting surface and a bottom surface, the method comprising the steps of:

fixing said bearing device and said stator to said stator mounting surface;

assembling said rotor on said bearing device; and removing the motor from the skeleton.

18. A brushless motor comprising a stator, a base, a bearing device, and a rotor, the stator having a stator core and a coil wound around the stator core, said base being a plate-like substrate comprising an electric insulating material as a base material and having a bottom surface, a stator mounting surface opposed to the bottom surface, and an outer circumferential side surface, at least part of said outer circumferential side surface or two or more portions thereof being exposed so as to be held by a skeleton, the bearing device and the stator being fixed coaxially to said stator mounting surface, said bottom surface or said stator mounting surface having pairs of terminals arranged thereon, said rotor having a rotor yoke and a magnet fixed to it,

said rotor yoke surrounding the periphery of said stator and being rotatably supported by said bearing device.

19. The brushless motor according to claim 18, wherein the base is a double-side printed circuit board, and a plurality of lands are provided on each of the bottom surface and the stator side.

20. A portable information equipment comprising the brushless motor according to any one of claims 1 to 6 and a substrate for mounting the brushless motor thereon, said motor being surface-mounted on said substrate.

21. A portable information equipment comprising the brushless motor according to any one of claims 1 to 6 and a substrate for mounting the brushless motor thereon, wherein the number of lands adapted for fixation of the motor of the equipment is larger than the number of poles needed for electrical connection of said brushless motor.

22. A portable information equipment comprising the brushless motor according to any one of claims 1 to 6 and a substrate for mounting the brushless motor thereon, wherein the cover of said brushless motor is electrically grounded to said substrate of the equipment.

23. An assembly method for a portable information equipment comprising the brushless motor according to claim 5 or 6 and a substrate for mounting the brushless motor thereon, wherein said brushless motor is accommodated in each of a plurality of embosses arranged in series to form a

tape-like package, and is thereafter supplied from said package to be surface-mounted on said substrate of the equipment in an assembly process.